area. Alternatively, the inlets may be effectively reduced by placing a piece of sticky aluminum foil over the manifold and making new holes with a 28 gauge needle, or with an off-spec spotting pin (Figure 2). Alternatively, the manifold could be constructed with smaller apertures **3** (Figure 2). The magnitude of reduction of the cross-sectional area is preferably such that only a portion (for example, approximately half) of the pin tip **1** could fit through the aperture **3** and the pin body **2** cannot enter the aperture. Secondly, the pins **2** are preferably set to be about 100 micrometers above the manifold. From this point the pins **2** are reciprocated up and down to create further air turbulence, which result in excellent cleaning (3 to 5 percent carryover at maximum).

Please replace the paragraph on page 12, lines 10-15 with the following:

During printing onto the slides **9** it is necessary to both approach and depart from the slides **9** at a relatively slow speed in order to promote optimal spot quality. If the pins **2** approach the slide **9** too quickly they will create "micro splashes" which will disrupt spot morphology. Similarly, if the pins **2** are pulled away from the slide **9** too quickly, then the spots can be pulled in such a way that morphology is disrupted. The following exemplary aspects were determined:

Please replace the paragraph on page 13, line 31 to page 40 line 10 with the following:

This procedure leads to ideal spot morphology with one particular set up (3X SSC spotting solution, DNA concentration of 0.1 to 0.2 micrograms/microlitre), however differing spotting solutions and DNA concentrations require different timings due to changes in viscosity. To a person in the art, it is clear that variations to the mentioned parameters may also be used for proper performance, for example the extent that the pins are allowed to drop past touching the slide (approximately 200 micrometers in this case), the height of the pins in the "up position" (about 2 mm above the "down position"), and

the duration the pin rests on the slide. These numbers are offered as examples. Lower viscosity solutions are likely to splash more easily but will make larger spots. As a result it is generally preferred that (1) the approach speed be reduced; (2) the distance past touching be reduced; and (3) the departure speed be reduced. Typically higher viscosity solutions will have (1) the distance past touching increased to increase dwell time; or (2) an additional step to provide a dwell time of defined duration after touching. With higher viscosity solutions approach and departure speeds can be increased which will compensate for the required dwell time.

Please replace the paragraph on page 14, lines 14-24 with the following:

It is important that deposition of probe DNA yield regularly spaced spots of uniform morphology. Not all deposition or spotting pins designed to the same specifications behave in a similar manner. Each will load an amount characteristic of the pin. Consequently, the size of the first spots produced from a set of pins will be significantly variable. The greatest concern is that deposition of excessive material on the microarrays may yield overlapping spots. The results of which will effect contamination of the material spotted on the arrays as well as the material in the probe plates. As spotting proceeds the excess material is removed and the size of spots become uniform. The purpose of the blot slide or blot pad is to remove the excess material from the pins prior to the spotting on to the microarray slides. This has helped ensure the production of well order arrays with uniform spot configuration.

Please replace the paragraph on page 14, lines 25-31 with the following:

The Blot slides are preferably composed of polished glass or similar material. High-quality microscope slides work very well. To maximize the space allocated to the printing of arrays, it is important to determine the minimum size required for the Blot Slide to perform adequately. Sufficient distances are allowed between spotted material to

preclude the possibility of overlapping of spots. A centre to centre distance of about 0.5 mm (millimeter) is optimal. Sufficient numbers of spots are printed to ensure uniformity of spots to be subsequently printed on to the arrays.

Please replace the paragraph on page 17, lines 1-3 with the following:

c. The third calibration point is the "down position" (the down position). This position is selected to be the point at which the pins are just touching the bottom of the wells (or perhaps a little past the point of touching).

No new matter is introduced by the amendments to the specification.

IN THE CLAIMS

Please Cancel Claims 1-17 without prejudice.

Please add new claims 44 to 89 as follows.

44. A manifold assembly for removing liquid from microarray spotting members, the spotting members each having a spotting member body and a first open end portion for printing a spot on a microarray slide, comprising:

a plate, the plate defining a plurality of fluid flow apertures extending through the plate, the apertures having an axis and a first diameter, the spotting member bodies having a second diameter wherein the second diameter is greater than the first diameter, and wherein the first open end portion of the spotting member is adapted to extend into the aperture; and

turbulence means for creating turbulence between the spotting members and the apertures for removing liquid from the first open end portions of the spotting members through the apertures.